MICHIGAN DEPARTMENT OF NATURAL RESOURCES

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INTEROFFICE COMMUNICATION

August 6, 1992

TO: Gene Hall, Project Manager
Site Management Unit 2
Superfund Section
Environmental Response Division

FROM: Robert Delaney, Geologist
Superfund Support Unit
Geological Services Section
Environmental Response Division

SUBJECT: Well Construction, Albion/Sheridan Township Landfill/Superfund Site, Calhoun County

It appears that EPA has chosen to use PVC pipe for monitoring well construction at the Albion/Sheridan Township Landfill. This is contrary to MDNR recommendations as expressed in our June 3, 1992, meeting between EPA representative, Mary Beth Novy; WW Engineering representatives Elizabeth M. Uhl and Richard Trippel; and MDNR representatives Jim Heinzman, Gene Hall, and Robert Delaney.

MDNR requires on all sites for which it has authority, the use of stainless steel or galvanized rod for monitoring well construction. Stainless is used most frequently because it can be used in metals plumes, organic plumes or mixed plumes.

Our objections to the use of PVC are two fold. The first objection is that PVC is known to adsorb, absorb and desorb organic contaminants. (Practical Handbook of Ground-Water Monitoring, Lewis Publishers, Nielsen, 1991; Influence of Casing Materials on Trace-Level Chemicals in Well Water, Parker, GWMR, 1990). Additionally, PVC is known to leach several chemicals that are common contaminants at superfund sites (Nielsen 1991). These two factors could compromise the integrity of the chemical monitoring program.

In the Practical Handbook of Groundwater Monitoring edited by David Nielsen, Chairman of the American Society for Testing and Materials (ASTM) Subcommittee D-18.21 on Groundwater and Vadose Zone Investigation, it is stated that one of the most common problem areas in well design is, "the use of well casing or well screen materials that are not compatible with the hydrogeologic environment, the anticipated contaminants, or the requirements of the groundwater sampling program, resulting in chemical alteration of samples or failure of the well" (emphasis added).

At the Albion/Sheridan Landfill we know that organic contaminants were discharged to the aquifer. We are uncertain in what quantities they were discharged and we are uncertain exactly which chemicals were disposed of at the site. As such, it would seem imprudent, in the first round of monitoring well installation, to use a material that is known to alter groundwater organic chemistry and might fail in an organic plume.

Additionally, it has been MDNR's experience that PVC does not hold up well over time. The "stick up" does not as effectively withstand the cold as stainless steel over the normal design life of the project. A few dollars saved today may result in major expense for replacement years later.

Overall, the State has found that in most situations, over the life of a project, stainless steel is more cost effective than PVC. There is less concern about compromising the integrity of the sampling program and stainless steel is more rugged than PVC.

cc: Jim Heinzman, ERD